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EXAMINER

KNOLL, CLIFFORD H

PART UNIT

PAPER NUMBER

2112

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5

Please find below and/or attached an Office communication concerning this application or proceeding.

SL

Office Action Summary

Application No.

09/826,238

Applicant(s)

CARPENTER, BILLY R.

Examiner

Clifford H Knoll

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicant's amendment of 1/6/2004 has been entered as paper number 4.

Amended claims 1-16 and new claims 17-20 are currently pending.

Claim Rejections - 35 USC § 102

Previous rejection under 35 USC 102 has been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 15, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 15, and 18 the selecting is unclear because the selecting process is inferred, but has not been clearly established.

Claim Rejections - 35 USC § 103

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiener in view of Huang (US 2002/0078138).

Regarding claim 1, Wiener discloses a wiring network having a composite fabrication assembly comprising a plurality of conductive conduits placed between

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layers of the assembly each having opposite ends (e.g., col.5, lines 31-34), first and second gateways (col.8, lines 10-13). Wiener also discloses a communications network (e.g., col. 8, lines 6-9) with active interconnects and switching and gating elements (e.g., col. 8, lines 47-59) but neglects to expressly mention the explicit details of switching; however, Huang discloses this. Huang discloses a controller for selecting a conduit from among the plurality and for selecting and directing the transmittable information over the selected conduits (e.g., paragraph [0044], "communications can be passed among different components").

It would be obvious to combine Huang with Wiener because Wiener clearly teaches the use of her invention for parallel high-speed systems in general, and in aircraft in particular, such as the system of Huang. Huang discloses the details neglected by Wiener and teaches the advantages, including ease of configuration and robustness, of a particular means of conduit selection in a parallel high-speed aircraft network such as that of Wiener. Huang is virtually ready-made to provide the implementational detail to a Wiener system. Therefore it would be obvious to one of ordinary skill in the art to combine Huang with Wiener at the time the invention was made.

Regarding claim 2, Wiener also discloses multiple component specific conduits between the gateways and specific component (e.g., col.8, lines 29-40).

Regarding claim 3, Wiener also discloses comprising electrical wires (e.g., col.8, lines 20-21).

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Regarding claim 4, Wiener also discloses comprising optical wires (e.g., col.8, lines 15-16).

Regarding claim 5, Wiener also discloses each gateway as a bus (e.g., col.8, lines 39-44).

Regarding claim 6, Wiener also discloses wherein each gateway is placed between layers of the assembly, further including a terminal for connecting a component to the gateway externally of the layers (e.g., col.8, lines 29-40).

Regarding claim 7, Huang also discloses a programmable server (e.g., paragraph [0044]).

Regarding claim 8, Huang also discloses gateways associated with each externally connected component and the server is adapted for selecting any of a plurality of conduits for transmitting information (e.g., paragraph [0044]).

Regarding claim 9, Huang discloses selecting the conduit on the basis of predetermined hierarchy (e.g., paragraph [0012]).

Regarding claim 10, Huang also discloses selecting the conduit of least resistance (e.g., paragraph [0044]).

Regarding claim 11, Huang also discloses selecting the shortest conduit (e.g., paragraph [0044]).

Regarding claim 12, Huang discloses a conduit selector on each gateway (e.g., paragraph [0044]).

Regarding claim 13, Wiener also discloses a vehicle having a central control center and a plurality of components located remotely from the central control center and controlled from the central control center (col.8, lines 52-54).

Regarding claim 14, Huang discloses a cockpit with the controller located in the cockpit and the remote component located outside the cockpit (e.g., paragraph [0003]).

Regarding claim 15, Wiener discloses a plurality of conductive conduits placed between layers of the assembly each having opposite ends (e.g., col.5, lines 31-34), first and second gateways (col.8, lines 10-13). Wiener also discloses a communications network (e.g., col. 8, lines 6-9) with active interconnects and switching and gating elements (e.g., col. 8, lines 47-59) but neglects to expressly mention the explicit details of switching; however, Huang discloses this. Huang discloses a controller for selecting a conduit from among the plurality and for selecting and directing the transmittable information over the selected conduits (e.g., paragraph [0044], "communications can be passed among different components").

It would be obvious to combine Huang with Wiener because Wiener clearly teaches the use of her invention for parallel high-speed systems in general, and in aircraft in particular, such as the system of Huang. Huang discloses the details neglected by Wiener and teaches the advantages, including ease of configuration and robustness, of a particular means of conduit selection in a parallel high-speed aircraft network such as that of Wiener. Huang is virtually ready-made to provide the implementational detail to a Wiener system. Therefore it would be obvious to one of

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ordinary skill in the art to combine Huang with Wiener at the time the invention was made.

Regarding claim 16, Huang also discloses a cockpit with the controller located in the cockpit and the remote component located outside the cockpit (e.g., paragraph [0003]).

Regarding claim 17, Huang also discloses the controller is a computer (e.g., paragraph [0044]).

Regarding claim 18, Wiener discloses a plurality of conductive conduits placed between layers of the assembly each having opposite ends (e.g., col.5, lines 31-34), first and second gateways (col.8, lines 10-13). Wiener also discloses a communications network (e.g., col. 8, lines 6-9) with active interconnects and switching and gating elements (e.g., col. 8, lines 47-59) but neglects to expressly mention the explicit details of instructions for switching; however, Huang discloses this. Huang discloses a server for selecting a conduit from among the plurality and for selecting and directing the transmittable information over the selected conduits (e.g., paragraph [0044], "communications can be passed among different components").

It would be obvious to combine Huang with Wiener because Wiener clearly teaches the use of her invention for parallel high-speed systems in general, and in aircraft in particular, such as the system of Huang. Huang discloses the details neglected by Wiener and teaches the advantages, including ease of configuration and robustness, of a particular means of conduit selection in a parallel high-speed aircraft network such as that of Wiener. Huang is virtually ready-made to provide the

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implementational detail to a Wiener system. Therefore it would be obvious to one of ordinary skill in the art to combine Huang with Wiener at the time the invention was made.

Regarding claim 19, Huang discloses the server instructs the gateways to select a second of the conduits when the server determines the first conduit is unusable (e.g., paragraph [0044], "subsystem failures will not likely cause a system wide failure").

Regarding claim 20, Huang also discloses a cockpit with the controller located in the cockpit and the remote component located outside the cockpit (e.g., paragraph [0003]).

Response to Arguments

Applicant's arguments filed 1/6/2004 have been fully considered but they are not persuasive.

Applicant argues that Wiener "does not describe a wiring network as featured in claim 1, or a wiring system for an aircraft as featured in claims 15 and 18" arguing that "Wiener merely describes optical fibers woven into other material to provide sensors or 'smart' skins for aircraft and other applications" (p. 7) and directs to Wiener's Figure 1 and column 1, lines 17-22. One merely needs to continue the quoted citation to discover "other applications such as optical backplanes for highly parallel, high performance computer systems, and local area network interconnects", which is clearly anticipatory.

Applicant further argues Wiener “does not describe a plurality of conductive conduits placed *between* layers of a fabrication assembly” and “appears to teach away from embedding the optical fibers” because embedding is disadvantageous “due to problems with kinking during curing” (p. 7). The specific argument to the extent that it relies on “embedding” and the invocation of “teaching away” because of “kinking during curing” implies a framework that finds no support whatsoever in the claims and so fails in the specific to distinguish the claimed invention; nonetheless, Wiener teaches that “the structure can be coated or embedded in a rigid material” (col. 3, lines 2-3). The basis of the more general argument is the physical structure as recited in the claims that rely on “a composite fabrication”, “layers”, and “conduits placed between layers”, which Wiener clearly teaches. As cited *supra*, Wiener teaches a “protective coating material to hold all fibers in place” (col. 5, lines 23-25), and later elaborates “[o]nce the structure has been woven with the optical fibers in position, the assembly may be coated with a desired material to give added protection to the structure... and the structure is provided with additional rigidity” (col. 6, lines 48-53). Applicant argues that the passage cited “merely describes that a coating ... can hold the optical fibers within the wool fibers”; however it is clear that a composite fabrication is taught and that the “mere” coating forms the layers, which the conduit layer is in between. Any distinction in the layers of the claimed invention finds no support in the recitation.

Applicant further argues that Wiener “does not describe first and second gateways attached” (p. 7); however the cited passage from Wiener teaches “interconnecting components” and teaches particular embodiments which “can be used

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to provide high speed data buses are channels to interconnect components in a high performance computer system”, including for example “redundant means for transmission of information” (col. 8, lines 10-19). Applicant interpreting this passage remarks “o[f] course, so can any optical fiber” (p. 7). While this might be an argument for obviousness, Wiener makes the anticipatory distinction of actually stating it, and specifically stating it as a particular embodiment of her invention. That this teaching is putatively stating the obvious does not negate the statement. Applicant argues that the disclosure of “gating elements” of Wiener is an “insufficient description to be considered teaching a network or system structure including gateways attached to each end of each optical fiber” (p. 7). The passage from Wiener read more fully states “switching, addressing, and gating elements... may be incorporated into the active interconnects” (col. 8, lines 52-54) and is in fact relied upon as a *sufficient* description of the gateways in the context of the “high speed [redundant] data buses” in the context of “local area network interconnects” which have already been described supra. Applicant argues a distinction in the claimed invention of “true gateways forming part of the claimed wiring network” and offers the support “that they work in unison with each other such that the network or system transmits and/or receives information between the gateways.” If this is what distinguishes “true gateways” from the gateways of Wiener, it is not clear what distinction is afforded by the claims; in particular, there is no suggestion of “work in unison” in the claims, let alone positive recitation thereof. Wiener teaches a functioning network and further specifies “redundant means for transmission of information” (col. 8, lines 18-19). Although they have been introduced by amendment, the gateways as

claimed and as enabled by the specification (“[b]us gateways 23, 29 select a pathway among wires 25 between buses 23, 29 for connecting” (p. 5)), fail to distinguish the claimed invention over Wiener.

Applicant further argues that “Wiener does not describe a controller for selecting a conduit from a plurality of conduits and for selecting and directing transmittable information over the selected conduit as featured in claims 1 and 15”, or alternatively “a server” in claim 18 (p. 8). Examiner concurs; while Wiener discloses “switching, addressing, and gating elements” as instances of “active interconnects” (col. 8, lines 47-59) used in “high speed communications” or as a “backplane”, one might reasonably infer the claimed feature; however, Wiener neglects to fully delineate the claimed structure. Inasmuch as this feature has been introduced by amendment, the teaching reference of Huang, used as a teaching reference for other claims in the previous Office Action, is used to disclose the structure.

Applicant concludes this argument regarding claims 1, 15, and 18 by stating “Wiener does not describe a controller much less a controller for selecting a specific optical fiber from the array of fibers and selecting and directing transmittable information over any selected optical fiber” (p. 8); however, as stated above Wiener *all but* anticipates this. This particular structure, introduced by amendment and new claim, has been deemed indefinite for inadequately reciting the selection as seen in the 35 USC 112 rejection *supra*. In view of both the amended structure and the indefiniteness thereof, it is deemed appropriate to rely on the teaching of Huang in combination with Wiener in the new grounds for rejection *supra*.

Thus claims 1, 15 and 18 are newly rejected.

Regarding claim 2, Applicant argues that Wiener does not disclose the conductors are "component specific" (p. 8); however conductors specific to the components in Wiener are cited supra. It is not clear what distinction the Applicant intends, but it finds no support in the claims. Applicant further argues that this interpretation is contrary to the interpretation of a "bus regarding claim 5" (p. 8); however it is by no means clear why a bus cannot co-exist with component specific conductors, in fact the Applicant's own claimed invention recites both.

Regarding claim 5, Applicant argues that the "gating elements" of Wiener is not a bus (p. 8); however whatever distinction is being argued cannot be seen in the claims. According to a standard dictionary a bus is "a set of parallel conductors in a computer system that forms a main transmission path". It cannot be seen how a bus according by this definition, or any conceivable definition, can be seen in distinction to the parallel interconnects of Wiener.

Regarding claim 6, Applicant argues that Wiener does not disclose a gateway between layers; this has been treated supra; however Applicant states that the "Wiener woven structure is the layer" and "not between the layers" (p. 8). However there are additional layers, ignored by the Applicant's interpretation, that it is between, as demonstrated in the citations and expounded supra. Applicant further argues a gateway is not described by Wiener, "other than the description of the possible inclusion of the 'gating elements'" (p. 9); however the gating elements *are* the gateways, adequately disclosed by Wiener as treated supra.

Regarding claims 7-9, Applicant argues that Wiener does not describe a server and its recited limitations; however, in view of the amended parent claim, Huang is relied upon in the new rejection (p. 9).

Regarding claim 13, Applicant argues that Wiener does not disclose the central control server or components (p. 9); however the citations supra make this clear.

Regarding claim 15, Applicant's argument essentially repeats those arguments regarding "layers" and "gateways" (p. 9) that were presented earlier in combination with claim 1 and have been treated adequately supra.

Thus although the rejection under 35 USC 102 has been withdrawn, the rejection of the same claims, as well as new claim 18, under 35 USC 103 has been deemed proper and necessitated by amendment.

Regarding the obviousness rejection, Applicant argues against application of Wiener, essentially repeating arguments made regarding the anticipatory rejection; these have been adequately treated supra. Applicant further argues that "Huang does not describe a plurality of conductive conduits placed between layers..." (p. 10); however Wiener, not Huang, is relied upon for these structural details.

Applicant further argues that Wiener and Huang combined do not teach or suggest all the claimed limitations; however all claimed limitations are treated in the rejection and response supra; specific arguments that ensue are treated infra.

Regarding claim 9, Applicant argues that Huang "does not describe selecting the conduit on the basis of a predetermined hierarchy" (p. 11); that the Applicant's hierarchy deals specifically with a hierarchy of selection criteria; however this specificity cannot be

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inferred from the claims. Huang teaches more than merely a physical structure; he teaches the use of that hierarchical structure in a selection operation; for example, paragraph [0044] (cited in subsequent claims) discloses that “communications can be passed among different components 62 within the multiple tiers of the intranet”. This is entirely anticipatory of a “selection of conduits ... based on a predetermined hierarchy”.

Regarding claim 10, Applicant argues that Huang “does not disclose selecting a conduit of least resistance”; that in Huang, “if one connection breaks the other is still providing a connection” (p. 11); however this interpretation of Huang is in fact adequate to show anticipation—clearly the “other” is the conduit of least resistance. Any additional support for distinction is lacking in the claims.

Regarding claim 11, Applicant argues that Huang “mentions nothing with respect to a selection based on a shortest conduit” (p. 11); however Huang teaches that “communications can be passed among different components 62 within the multiple tiers of the intranet 60 until they arrive at their intended destination” (paragraph [0044]); in particular, once they arrive at their intended destination among redundant pathways they have taken the shortest path.

Regarding claim 12, Applicant argues that Huang “does not even mention the term ‘gateway’ or conduit selector, much less a conduit selector on each gateway” (p. 11); in fact however Huang discloses the selection in the terminology of routing in a network which can only be construed as selection, while the specific physical gateway selector relies on Wiener for disclosure, as treated supra. In essence, Huang “selects” using the “gateways” of Wiener. There is nothing untoward about making such a

combination, the propriety of which is treated in the rejection supra and in the previous Office Action. The Wiener disclosure focuses on the physical arrangement while Huang provides the operational arrangement and together, with motivation, they render the claimed invention obvious.

Regarding claims 14 and 16, Applicant argues that Huang "merely discloses an electronic switch in the cockpit of a military aircraft that can send a signal through dedicated wiring to a weapon actuator" (p. 11); however this interpretation is adequate to anticipate a controller. To the extent that the claimed controller is not anticipated by Huang's switch, which controls a weapon actuator, the additional structure must be positively recited in the claims.

Regarding the independent claims, Applicant argues that Huang is not a proper reference, stating that Huang teaches away from a point-to-point structure, arguing apparently that the point-to-point structure more nearly describes the claimed invention (pp. 11-12); however no point-to-point structure can be discerned in the claims; in fact the claims, reciting gateways and conduit selection appear to disclose a structure that is, if not incompatible with point-to-point connections, is certainly silent about them. However, irrespective of this broad summary of claim interpretation, the precise recitation used to claim the invention has been rendered obvious at each point by the art of record. The arguments to the contrary have been fully considered but do not persuade otherwise.

Applicant concludes by arguing that there would be little expectation of success if one were to combine the references; however, as explained in the above rejection,

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Huang appears to be ready-made to apply to Wiener. Wiener presents a network topology, focusing on the physical details of its construction and deployment. Although argued otherwise, Wiener more than adequately discloses the use of her network as a high speed communication network, or local area network; it is stated explicitly, and referred to several times in the course of the disclosure, as cited *supra*. Huang teaches how to *use* networks with redundant pathways in an aviation environment – precisely the network whose physical detail are disclosed in Wiener.

Applicant further argues that “requiring an armament system to have the interface with optical fiber in the skin of an aircraft would clearly reduce versatility, thus, Wiener did not suggest or advocate such use” (p. 12). While Wiener certainly teaches the use of her disclosure as a “smart skin”, this aspect of her invention was *not* the means to motivate. Wiener was well-aware of the general use of her disclosed network and stated so explicitly, “[t]he structure fabricated according to this invention has many applications and can be used to provide sensing, imaging, and communications” but does not stop there. “Additionally, the structure may be employed for transmission of data in highly parallel, high performance computer systems, and local area network interconnects” (col. 3, lines 27-35). Numerous additional passages, some cited *supra*, show that Wiener taught some of the broader aspects of such a use. The specifics of its operation were however, left for another to teach. Huang, who teaches the advantages of a particular way to use a redundant path local area network on an airplane, amply fulfills that requirement. Given a network, and a means to use a network, a person of ordinary skill in the art would have no difficulty using the network.

Thus the combination is deemed proper, and claims 9-12, 14, and 16 stand rejected by Wiener in view of Huang. In view of amendments, claims 1-20 are rejected by Wiener in view of Huang.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 703-305-8656. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chk



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